Earth Science

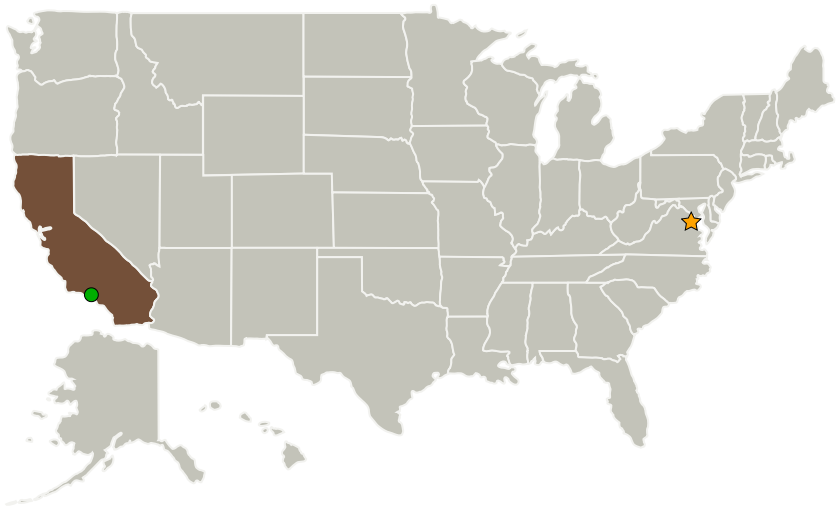
Advanced Amplifier Based Receiver Front Ends for Submillimeter-Wave-Sounders

Completed Technology Project (2012 - 2015)

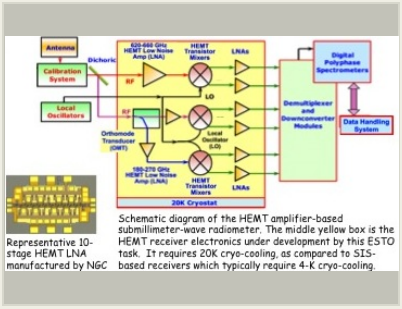
Project Introduction

Develop high electron mobility transistor (HEMT) amplifier based heterodyne radiometers to provide high sensitivity at millimeter and submillimeter wavelengths with high spectral resolution for molecular line detection.
Performance goals are:
Low system noise temperature:
< 280K Single Sideband at 230 GHz
< 650K Single Sideband at 640 GHz
Wide spectral coverage:
180-270 GHz (for tropospheric measurements)
620-660 GHz (stratospheric measurements)
Sideband separation: > 15 dB
Amplifier front-end operating temperature: 20K

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★NASA Headquarters(HQ)	Lead Organization	NASA Center	Washington, District of Columbia
●Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California



Project Image Advanced Amplifier Based Receiver Front Ends for Submillimeter-Wave-Sounders

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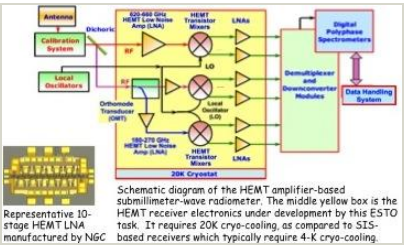
Primary U.S. Work Locations

California

Images



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Project Image Advanced Amplifier Based Receiver Front Ends for Submillimeter-Wave-Sounders
(https://techport.nasa.gov/image/1549)

Organizational Responsibility

Responsible Mission Directorate:
Science Mission Directorate (SMD)

Lead Center / Facility:
NASA Headquarters (HQ)

Responsible Program:
Earth Science

Project Management

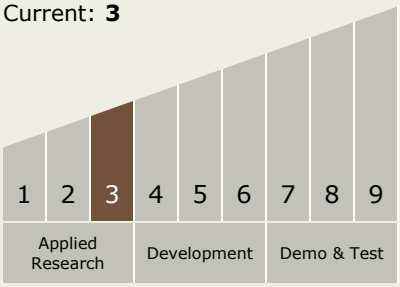
Program Director:
George J Komar

Project Manager:
Joseph Famiglietti

Principal Investigator:
Goutam Chattopadhyay

Technology Maturity (TRL)

Start: **3**
Current: **3**



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Completed Technology Project (2012 - 2015)

Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.1 Detectors and Focal Planes

Target Destination

Earth